DLNR - DIVISION OF AQUATIC RESOURCES

CURRENT LINE

DAR STATEWIDE PROJECT INFORMATION NEWSLETTER VOLUME 2, NUMBER 2, May 1998

LEGISLATURE 1998

Advances made by the 1997 state legislature to improve management of Hawaii's aquatic resources may be dealt a serious blow as the current legislature stuggles to find ways to reduce government spending. Last year's legislature supported the governor's "Ocean State Initiative" by providing increased funding to the Division of Aquatic Resources (DAR) and the Division of Conservation and Resources Enforcement (DOCARE). This money has been used to fund research initiatives and provide additional needed staff.

But the House version of the state budget, which recently crossed over to the Senate, would cut DAR's budget by $176,233 and DOCARE's by $507,932. This would mean the loss of ten enforcement officers and two aquatic biologists hired as a result of last year's initiative, along with other significant cuts.

"Lack of enforcement" is a complaint often heard from people concerned about Hawaii's ability to take care of its ocean resources. Chronic understaffing at DAR has limited its ability to implement programs addressing pressing environmental concerns, such as reef degradation, overfishing, introduction of exotic species, etc. Just as DLNR was starting to take significant steps forward in its ability to manage its resources, we may be forced to step backward again.

Much has been made of Hawaii's dismal statistics compared with other states with regard to fish and wildlife funding (48th) and spending on environmental programs (dead last). Our natural resources are our major attraction, and the foundation of our visitor industry. If we are not provided the money needed to take care of them in a responsible manner, the economic implications could be devastating.

1998 has been declared the International Year of the Ocean, in recognition of the importance of the marine environment and its resources. It would be a tragic irony if Hawaii, the Ocean State, has to stand by and watch its marine resources denied the attention they deserve.

FISHING SURVEY SUMMARY DONE!

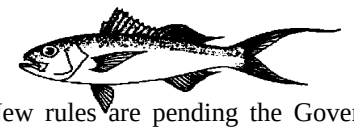
For those of you that haven't seen it yet, the summary results from last year's Fishing Survey is available as a *'Current Line SPECIAL EDITION' February 1998 issue.* This issue is available through all DAR offices statewide and those Fishing Supply Stores and Sporting Goods Stores that are licensing agents on Oahu.

Again, we would like to thank all the 863 fishermen/women out there who took the time to fill out our survey. We truly appreciate your efforts and your kokua in providing us with all the information needed to complete this survey report.

MAHALO NUI!

LICENSES, RULES & REGULATIONS

NEW BOTTOMFISH RULES



New rules are pending the Governor's approval to promote management of Hawaii's current bottomfish stocks. It's been determined that the reproductive stocks of onaga and ehu are only 5% (for onaga) and 8% (for ehu) of what they used to be. Federal regulations define a stock as overfished if this percentage drops below 20%, so it's clear that we need to do something to save and conserve these fisheries. These percentages are based on information taken from catch reports and other information collected by fishery researchers. This is the reason why catch reports are so important to us. DAR relies on these monthly catch reports to furnish the State with data to make proper resource management decisions such as these.

The new rules are as follows:

1. the use of nets, traps, trawls, and longlines for bottomfishing purposes are prohibited

2. the possession of such gear on boats with bottomfish is prohibited

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1151 PUNCHBOWL STREET, ROOM #330, HONOLULU, HAWAI'I 96813
587-0100

3. Noncommercial bag limits of 5 for onaga or ehu, or a combined total of 5 for both

Other measures included as part of the statewide bottomfish plan are 1) bottomfish restricted fishing areas - approximately 20% of known bottomfishing areas are closed to fishing, and 2) vessel identification system - DLNR will soon establish a vessel identification system in which all boats used for bottomfishing will be required to display "BF" on both sides.

Information about the new bottomfish rules can be obtained from all DLNR Aquatic Resources and Conservation Enforcement offices around the State. Copies of the new rules and maps of closed areas can also be obtained at DLNR's small boat harbors statewide.

NEW COMMERCIAL FISHERIES LICENSE/PERMIT RENEWAL REQUIREMENT

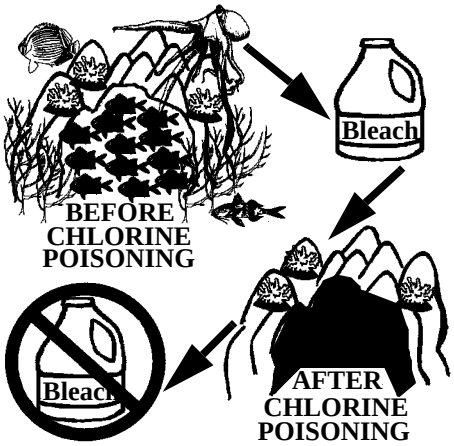
The Hawaii Administrative Rule Chapter 74 is being amended to require anyone who wishes to renew a commercial fisheries license or permit to be current with their monthly reports. This amendment is expected to become law effective about July 1998. To provide the public with ample notice of the Rule change, the DLNR will implement and enforce the new requirement as follows:

Once the amendment is effected, anyone may procure a new license or renew a license, however, **the licensee will not be able to renew that license thereafter if the monthly report requirement is incomplete.**

ILLEGAL USE OF CHLORINE ON REEFS TO CATCH FISH

Back in January, you may have heard about the two men that were arrested by DLNR enforcement officers for illegally using chlorine bleach (i.e. Clorox and Purex, etc.) to catch fish. Chlorine is highly toxic to all ocean life killing whatever comes into contact with it. It causes a chemical reaction in the gill tissue which blocks the transfer of oxygen to the animals, causing it to suffocate to death. It's not easy to prove these cases in court since chlorine breaks down quickly and is virtually undetectable in the fish that are caught.

The practice of using chlorine to catch reef fish is considered selfish, cruel, and an incredible waste of our precious resources. Since chlorine either kills or drives all marine life away from the surrounding area, the place is literally STERILIZED. Not only are the target species (i.e. menpachi) caught, but other non-target species are caught as well. Non-target species include those that are not very desirable for eating (i.e. angler fish) or those that are too small to eat. Those fish or animals that are lucky enough to escape death from exposure to chlorine poisoning may still be affected in their abilities to reproduce or detect food.



Areas exposed to chlorine poisoning can no longer provide adequate food and habitat for fish or any other plants and animals. After the chlorine is flushed or breaks down, it takes awhile for these areas to recolonize with algae and coral to provide food and habitat for everything from small worms and snails, to crabs and eventually fish.

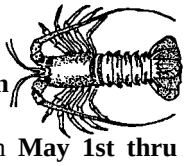
This type of fishing method not only takes what is being targeted, but also kills everything else that could have continued to support more fish and other animals in the area. It is for this reason that **it is unlawful for anyone to use chlorine or any other poisonous chemicals in State waters to take or remove any aquatic life** (Hawaii Revised Statute, Section 188-23). Penalties for any person violating section 188-23 is a fine of up to $1,000 and/or up to one year in jail.

Please help us to take care of our ocean resources so that it will continue to help take care of us. DLNR enforcement officers appreciate all those who call in to report illegal offenses to our natural resources when they see it. To report violations, please call 587-0077 on Oahu. Neighbor island residents may call toll free by dialing the operator and asking for "enterprise 5469".

REMINDERS:

Mullet Season (for `ama`ama or striped mullet) is now open as of March 1st and will run till **November 30th**. Remember that minimum size for spear and/or sale is 7 inches.

Moi & Moi-li`i Season will be closed between **June 1st and August 31st**. These animals spawn during the summer months so let's give them a break to help us increase their numbers.

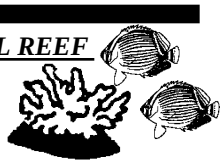


Spiny Lobster Season
Slipper Lobster Season
& Kona Crab Season
will be closed between **May 1st thru August 31st**. These animals spawn during this time, so let's give them a chance to breed and multiply.

Nuuanu Catfish - remember to put in your application cards for the May 1998 Catfish Opening and renew your freshwater fishing license if you need to. The bag limit is two catfish per angler. Cards should be available around April 1st at the **New DLNR Visitor Center** in the Kalanimoku Building, Room 131, and other licensing agents. The deadline for applications is April 24th.

NEARSHORE PROJECTS

HAWAII CORAL REEF MONITORING PROGRAM



People are becoming more and more concerned about the health and sustainability of ocean resources surrounding our 1800 mile long home archipelago, the Hawaiian Islands. West Hawaii in particular depends on a healthy ocean for its livelihood and quality of life; so much so that DLNR and its Division of Aquatic Resources consider the area one of its "Hot Spots" of particular concern.

Along the coast of West Hawaii from Upolu Point (North) to Ka Lae (South Point) there are 10 Fishery Management Area zones along more than 7 1\2 miles of shoreline, reef, and ocean; and 4 Marine Life Conservation Districts covering another 4 1\2 miles of shoreline and nearby waters. The West Hawaii coastline includes parts of North and South Kohala; North and South Kona; and Ka'u districts. About a third of the shoreline and nearby waters between Kiholo Bay in North Kona and Kealakekua Bay (about 30 miles away) in South Kona is in some regulated status.

Various regulations covering gear, species, and seasons also are in effect throughout Hawaii to ensure a healthy marine environment. Even with the above network of regulations to sustain our resources, there is a growing concern that we are still taking too much and that some marine life could be depleted beyond recovery. There are strong concerns about overfishing; decline in catch rates and number of fishes; pollution; deterioration of ocean water quality and coral reef health; and loss of habitat which depletes the beauty and vitality of our ocean state.

Natural resources management is more about managing people's activities than about "managing" the environment and its inhabitants. Allocation of finite marine resources is a tough job, made tougher by more humans and more demands on natural resources.

DAR conducts periodic fish population studies and surveys statewide to assess the general health and abundance of various marine life. However, there is a growing concern about human impacts

on marine life and ecosystems. In late 1995, DAR formed a partnership with the University of Hawaii Hilo Marine Option Program(MOP) to assess human impacts on marine animals and habitat. The partnership brought together expertise in underwater surveys, marine plants and animals, photography, computer systems, statistical analysis, and resource management. The new effort included DAR scientific divers, UHHilo faculty, and UHMOP students trained through the Quantitative Underwater Ecological Surveying Techniques(QUEST) program. Surveys began in Kona in 1996 and are ongoing.

The joint surveys are designed to: 1. Assess potential impacts of non-consumptive SCUBA diving on selected reefs; and 2. Assess potential impact of fishing pressure on selected reefs. The surveys focus on two of many ocean activities with impact: charter snorkel and SCUBA tours; and commercial collection of aquarium fish.

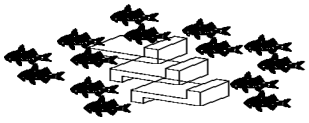
Each study site is composed of an "experimental" area of two 50 meter long surveys and a same size "control" area pair close by, but away from the activity under study(tour diving, aquarium fish collecting, etc.). 3\8 inch stainless steel eyebolts are imbedded at the end of each 50 meter transect, so that the same stretch of bottom is surveyed each time. A graduated metric tape measure is laid out from pin to pin during the work.- The eyebolts, even with small donut floaters attached , can be very hard to find on the next survey, as algae growth is rapid and "camoflages" the pins. A combination of photography and visual counts is used by pairs of divers. A fish count(transect) or photographic shoot along a single 50 meter transect takes from 15 to 30 minutes. Fish sites are repeated every 2 months and coral sites are photographed every 6 months. Data accumulated over perodic surveys indicate the population numbers and extent of fish and coral over time, and trends in these data can tell managers when to tighten or relax allowable harvests and area use. Continued monitoring is necessary to effectively manage these marine "gems" and insure their sustainability for the future.

Because of its importance as a marine ecosystem "Hot Spot", Molokini Islet Marine Life Conservation District has been added to the Kona sites as a regular survey site. The 42 permitted dive and snorkel tour charter boats using Molokini reportedly generate over $20 million in gross revenues annually. DAR and UHMOP divers last surveyed Molokini on March 7th.

DAR with is expanding its monitoring of vital ocean resources in conjunction with the Governor's "Ocean Initiative" passed by the Legislature in 1997. New partnerships allow more effective monitoring with limited available resources. Collaborative efforts also include the investigation of coral reef diseases and assessment of algae(Limu), an important component of Hawaii's ocean environment.

DAR is working hard to assess and help sustain Hawaii's ocean resources. For more information on the Hawaii Coral Reef Monitoring Program, contact DAR offices at (808)974-6201 in Hilo, or (808)243-5294 in Wailuku.

ARTIFICIAL REEF NEWS!



The U.S. Navy donated and scuttled a World War II barge at the Maunalua Bay Artificial Reef off Kahala, Oahu on Friday, March 13, 1998. The 110-foot barge sank over a barren, sandy/limestone bottom in water depths between 80-90 feet. Overtime, the barge should be the permanent residence of a variety of reef fishes and marine invertebrates.

During the week of March 30, 1998, the Division added 872 specially designed "Z" or "N" shaped habitats to the Maunalua Bay Artificial Reef off Kahala, Oahu. These habitats were deposited over depths ranging between 70-80 feet adjacent to existing clusters of nearly 1,400 habitats added to the Reef in November 1997. Another 450 habitats are scheduled to be added to the same site in about a month.

FRESHWATER FISHING

NUUANU CATFISH

Maintaining the catfish population at Nuuanu Reservoir for freshwater sportfishing is also another project that is funded through the Federal Sportfish Restoration Program. Federal funds, along with State matching amounts are used in part to stock and maintain the channel catfish population in Nuuanu Reservoir. The following are some statistics from last year:

Nuuanu Reservoir Catfish Openings

	73rd Opening May 1997	*74th Opening Aug. 1997*	*75th Opening Nov. 1997*
# of anglers	1667	1717	1362
# of fish	428	700	515
Ave. length	14.9 inches	16.24 inches	18.07 inches
Ave. weight	1.64 lbs.	1.91 lbs.	2.33 lbs.
largest fish caught	6 lbs 13 oz	35 inches at 22 lbs	8 lbs

As noted earlier, the next opening is May 1998. Remember to put in for your lottery date by filling out the application cards by April 24th. If you missed this deadline, the next opening is for August 1998 and application cards should be available in July.

X-FILES PROJECTS

THE ELUSIVE PHANTOM FISH KILLER, PFIESTERIA PISCICIDA, THE CELL FROM HELL!

Pfiesteria cell in toxic stage

Miconia, brown tree snakes and water hyacinth have all been in the news within the last year. All are striking examples of alien plants and animals that are potentially harmful to the environment and to the people of Hawaii. Less well publicized is the threat of alien organisms to our marine environment.

The harmful effects of similar arrivals in other areas have been dramatic. Most alarming is the transport of organisms that cause disease or poisoning to people. Cholera bacteria found in water samples from Mobile Bay, Alabama, are thought to have been carried there by ballast water in ships arriving from South America. Dinoflagellates that cause toxic red tides have been found in ballast water of ships arriving in Australia, and at least one of these caused a red tide outbreak in Tasmania. Red tides can kill finfish and make shellfish poisonous to humans.

Dinoflagellate algal blooms have always occurred periodically, but in the last 10 years, scientists have noticed an increase in toxic algal blooms around the world. Dinoflagellates once thought to be harmless are now known to be poisonous. A recently discovered dinoflagellate, *Pfiesteria piscicida*, has caused a major fish kill in the Neuse River in North Carolina where more than ten million fish in the summer and fall of 1995 died. *Pfiesteria* is an unusual dinoflagellate that acts more like an animal than a plant. The species name *piscicida* literally means “fish killer”. It is an “ambush-predator” that can paralyze and kill fish. It can also affect humans with symptoms ranging from grotesque sores to loss of memory. It can survive in fresh or salt water, but is the most deadliest in polluted (nutrient-rich) brackish water. *Pfiesteria* thrives in waters polluted by sewage and agricultural runoff - byproducts of humans and animal waste. Scientists suspect that this throws the estuary environment off-balance creating ideal conditions for *Pfiesteria* to transform from its harmless dormant stage to the toxic stage. Fisheries were shut down in several areas because of *Pfiesteria* outbreaks. So far, only the east coast has experienced problems caused by *Pfiesteria*. It is potentially a problem only during certain times of the year (usually June - October) and only in some estuarine locations. It does not appear to be a problem in lakes, inland waters, or ocean waters.

The life cycle of *Pfiesteria* consists of several stages. In its dormant stage, it exists as harmless cysts in bottom sediments. When it senses any fish or other prey item, it transforms to the toxic stage into a two-tailed dinoflagellate that releases a neurotoxin which stuns the fish and causes their skin to slough off. It then attacks the fish by burrowing into it and sucks out the flesh contents. The fish eventually dies with bleeding sores and lesions the size of a quarter and/or a heavily damaged anus which is a prime target.

Pfiesteria live for only 24 to 36 hours. During this time, they are actively feeding and reproducing. After they are done feeding, they turn into colorless amoebas or into cysts that settle back to the bottom waiting for its next victim. Like ‘Jason’ in those Friday the 13th movies, *Pfiesteria* is really tough to kill. It can be doused with sulfuric acid, bleach, or even dried and it would still survive.

Pfiesteria’s victims are not limited to aquatic animals. Humans are included as well. Scientists working with *Pfiesteria* became ill with symptoms of stomach cramps, respiratory distress, nausea, blurred vision, erratic heart beat, and memory loss. It was found that neurotoxic aerosols from the dinoflagellate had made its way from the laboratory through the ventillating system causing illness. During the time of the Neuse River fish kill, a number of divers, fishermen, and marine contractors developed sores similar to those found on the dead fish.

Hawaii has suffered consequences from many unintentional introductions to both terrestrial and aquatic environments. Some have already been introduced possibly through ballast water. The potential spread of organisms like *Pfiesteria* through ballast water should serve as a warning flag. Once introduced, control of such organisms is difficult and eradication is usually impossible. The best solution is to prevent their introduction as much as possible.

OFFSHORE PROJECTS

FAD PROJECT

The deployment cruise for Oahu and Kauai counties is currently going out for bid. Work includes light pack service on all on-station FADs and replacement of certain missing FADs. Cruise dates will remain pending till the bidding process is complete. Here is the most recent update of missing FADs:

MISSING FADs *(as of March 1998):*

FAD	Location	Island
D	Kumukahi	Hawai'i
RN	Palima Pt.	Hawai'i
HO	Hoolawa Pt.	Maui
M	Hana Bay	Maui
FF	Pukaulua Pt.	Maui
Q	Pauwela Pt.	Maui
O	Kalupapa	Moloka'i
K	Palaoa	Lana'i
WK	Wailua	Kaua'i
Z	Kipukai	Kaua'i
DK	Anahola	Kaua'i
EK	Hanalei	Kaua'i
X	Kahuku	O'ahu
LL	Hauula	O'ahu
II	Haleiwa	O'ahu
T	Makapuu	O'ahu
MM	Mokapu Pt.	O'ahu

For current locations and/or more information, contact Warren Cortez at 848-2939. Also, if you know of any FADs that broke loose, see any light out or have any other comments, please give Warren a call.

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FISH FACTS

Caranx ignobilis
(Giant Trevally, White ulua)

SIZES
Length: specimens will reach a length of up to 65 inches
Weight: commonly about 44 pounds, but can reach up to about 176 pounds

BREEDING
Sexual Maturity: females are sexually mature at a standard length of 23.6 inches.
Spawning: between April and November with peaks in the summer.

LIFESTYLE
Distribution: Indo-Pacific: widely distributed throughout most of the Indian Ocean and central Pacific, eastward to the Hawaiian and Marquesas Islands.
Habitat: Young papio are found in brackish -water areas i.e. bays and harbors. Adult fish are found over nearshore reefs; often hiding in caves during the day.
Diet: Feeds on fish such as uhu, opelu, and eels, also feeds on octopus (tako), lobsters, crabs, and shrimp.
Life Span: unknown.

RELATED SPECIES
The white ulua is a member of the Jack Fish Family which includes other species such as omilu, kagami ulua, yellow ulua, menpachi ulua, butaguchi, omaka, opelu, akule, lae, and rainbow runner. These are considered good food fishes, supporting a valuable commercial and sport fishery in Hawaii. Juveniles, known collectively as papio, tend to live close to shore for protection, then move toward deeper waters as they get older. The white ulua in particular is widely considered to be the ultimate shoreline gamefish.

The following table will give you an idea of how fast these fish grow and how old they are. Please note that these are just ball park figures and meant only to give you a general idea on the relationship of length, weight, and age.

Length, Weight and Age of White Ulua/Papio

Standard Length (inches)	Weight (pounds)	Age (years)
7	0.3	1
14	2	2
20	5.8	3
25	11.2	4
30	19.3	5
35	30.5	6
39	42.1	7
42	52.4	8
45	64.4	9
48	78	10
51	93.5	11
53	104.8	12
55	117	13
57	130.2	14
59	144.2	15
60	151.6	16
61	159.3	17
62	167.2	18